

10/561868

IAP20 Rec'd PCT/PTO 21 DEC 2005

INSULATING BAFFLE FOR WINDOW SPACE

BACKGROUND OF THE INVENTION

The present invention relates to windows, and in particular to the problem of the passage of air and sound through the open region which results when a window is slid away from its tightly closed position.

It is generally agreed that a sleeper will enjoy a more beneficial sleep when his bedroom is aerated by opening the window. The extent of the opening depends on the outside temperature, the strength and direction of wind, and the personal preferences of the sleeper (how many covers, etc.). However, when the window is adjusted to supply an appropriate passage for the entry of outside air, that passage is often so large as to allow street and traffic noises to enter the bedroom, thus interfering with the deep relaxation necessary to allow the room's occupant to fall asleep.

In many cases where this dilemma is encountered, the room's occupant attempts to adjust the window to a position which strikes a balance between sufficient aeration and sufficient restriction of the entering sound. Unfortunately, this often results in excessive restriction of the amount of entering air in order to cut down the sound to where it no longer interferes with sleep.

The present invention overcomes the problem just mentioned by providing a baffle adapted for insertion in the window space, the baffle defining a convoluted pathway which absorbs sound due to its shape, but allows the passage of air. The various components are such that different degrees of air entry and sound stoppage are attained by rotating the baffle through a predetermined angle and inserting it in its rotated condition. Certain component dimensions can also be adjusted to achieve different degrees of air and/or sound restriction.

BEST AVAILABLE COPY

SUMMARY OF THE INVENTION

Accordingly, in a first embodiment, the present invention provides a baffle for insertion between an edge of a window and an edge of a recess along which the window can reciprocate, the baffle comprising: at least two block members each with a section resembling a capital "S" that defines top and bottom surfaces and further defines two internal, oppositely-opening slots, and two elongate frame members each having a first portion adjacent one of said surfaces, and a second portion received in one of said slots.

In a preferred embodiment, the aforementioned section is substantially rectangular, and the top and bottom surfaces are substantially parallel.

In a further preferred embodiment, each combination of a slot with a second portion exhibits a configurational irregularity which resists disengagement of the second portion from the slot.

In a preferred version of the embodiment just mentioned, the irregularity is a cylindrical bead located on said second portion at the inner extremity thereof and engageable with a cylindrical recess in the corresponding block member.

In a further preferred embodiment, the block members and the frame members are all composed of sound-absorbent material.

In another preferred embodiment, each frame member resembles a "J", the first portion corresponding to the long part of the J, the second portion corresponding to the short part of the J, each frame member further including a third portion bridging between the first and second portions, whereby the baffle can be used either a) with said first portions horizontal, to trap sound while allowing air to pass through; or b) with said first portions vertical, to limit passage of both air and sound.

BEST AVAILABLE COPY

BRIEF DESCRIPTION OF THE DRAWINGS

One embodiment of this invention is illustrated in the attached drawings, in which like numerals denote like parts throughout the several views, and in which:

Figure 1 is a cross-sectional view through a first component of the window baffle of this invention;

Figure 2 is a cross-sectional view through a second and a third component of the window baffle of this invention;

Figure 3 is a cross-sectional view through the first, second and third components of the window baffle of this invention, in assembled or nested configuration;

Figure 4 is a perspective view of the components of the window baffle of this invention, in spaced-apart relation;

Figure 5 is a perspective view of an alternative configuration for the first component of the window baffle of this invention, with broken lines to show that a given set of components may include first components of differing lengths;

Figure 6 is an elevational view of a typical window, showing the positioning of a baffle in accordance with this invention; and

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Attention is first directed to Figure 1, which shows in section the first component 10 (mentioned previously). The component 10 can be more specifically described as an elongate member which has a constant section in the direction of elongation. The section somewhat resembles a capital "S" that defines substantially parallel top and bottom surfaces 12 and 14 respectively, and further defines upper and lower, internal, oppositely-opening slots 20 and 22. Additionally, the section of component 10 defines a vertical outer surface 16 and a vertical inner surface 18. The surfaces 16 and 18 are substantially parallel.

The invention further includes two similar elongate frame members 24 and 26, which are seen in section in Figure 2. In the embodiment shown, these components are identical, although it will be understood that such identity is not essential. It merely lowers the manufacturing costs.

Looking specifically at the lower frame member 24 in Figure 2, it will be seen that the member 24 has a first substantially flat portion 28 and a second substantially flat portion 30, the flat portions 28 and 30 being substantially parallel, and being joined together along a third portion 32 which, in the embodiment illustrated, is substantially flat and oriented at right angles to the planes in which the first and second portions 28, 30 lie.

It will now be recognized, by comparing Figures 1 and 2, that the configurations of the elongate frame members 24 and 26 as pictured in Figure 2, are such as to leave, between the frame members 26 and 28, an S-shaped passageway 34 which closely conforms to the section of the block member 10. It can also be imagined that the juxtaposition of the first and second portions 28, 30 of each frame member 24, 26 is such as to grip or squeeze the contained portion of the block member 10, which in turn passes along the squeezing or gripping action to the "second portion" 30a of the other elongate frame member 26.

BEST AVAILABLE COPY

This squeezing or pinching action exerted by the elongate frame members 24, 26 in effect keeps the entire unit together (once assembled) without requiring special fasteners, outer jackets, etc.

By equipping the "second portion" (30, 30a) of each frame member at the inner end with a bead 36, the latter matching a cylindrical chamber 38 in the corresponding slot 20, 22 (see Figure 1), a firm engagement of all three structural members is attained.

When the block member 10 seen in Figure 1 is installed within the elongate frame members 24, 26, the result is as shown in Figure 3.

It will be understood that the beads 36 and the enlarged recesses 38 do not represent the only configurational irregularity that could be used to make the components resist disassembly.

It is important for the block member and the elongate frame members to be composed of sound-absorbent material, such as felt or any commonly utilized cellular plastic.

Attention is now directed to Figure 4, which is an exploded view of three components, showing them in alignment, as if the elongate frame members 24 and 26 were positioned in final configuration, prior to insertion of a block member from one end. While this might be a feasible method, it is expected that the block member 10 would be engaged sequentially with the frame members 24, 26, merely to avoid the necessity of keeping three components at a time in spatial alignment.

The simplest practical juxtaposition of the components making up the baffle would call for the two elongate frame members 24 and 26, and two identical blocks 10 (as pictured at the left in Figure 4). The blocks 10 would be engaged with the extremities of the frame members 24, 26.

In Figure 6 there is shown a window frame 40, supporting a vertically moveable window 42. The window 42 can slide up and down as shown by the arrow 44, and in Figure 6 is in its lowermost position, in which there is left a horizontally elongate opening 46. The opening 46 is just the right size to receive the baffle which is composed of the frame members 24, 26, and two block

BEST AVAILABLE COPY

members 10. The position of the block members 10 is shown by single hatching at either end of the slot 46. The single horizontal line identified as 26, 24 in Figure 6 is meant to represent the location of the frame members. The line 24, 26 extends throughout the slot 46.

Figure 5 illustrates a variable length for the block member 10a. It is conceivable that this item could be marketed with two frame members (24, 26), and a number of block members (10a,b,c, etc.), so that the air and sound passageway between the frame members could be blocked up or occluded to a greater or lesser extent, by selecting some but not others of the block members, which would be placed at intermediate positions between the ends of the elongate frame members. Thus, instead of a single S-shaped passageway for air, there would be several passageways whose combined length is less than that of the main embodiment discussed previously (the one with only two block members, positioned at either end).

In addition to the variable characteristics offered by providing two or more block members of different lengths (or which could be cut to form even more block members), there is the possibility of rotating the entire baffle so that (for example) the opening which is identified by 50 in Figure 2 would be closed off by the upper part of the window frame, and the opening 52 would be blocked off by the window itself.

While one embodiment of this invention has been illustrated in the accompanying drawings and described hereinabove, it will be evident to those skilled in the art to which this invention pertains that variations and departures therefrom could be carried out, without departing from the essence of this invention, as set forth in the appended claims.

BEST AVAILABLE COPY